Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FCC 92-22
38325

In the Matter of	)	
	)	
Amendment of Parts 0, 1, 2, and 95 of the Commission's Rules to Provide Interactive Video and Data Services	)	GEN Docket No. 91-2
	)	RM-6196
	)	

REPORT AND ORDER

Adopted: January 16, 1992; **Released:** February 13, 1992

By the Commission: Commissioner Quello concurring and issuing a statement; Commissioner Marshall not present.

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INTRODUCTION

1. By this action, the Commission establishes an interactive video and data service (IVDS) and allocates spectrum for its use. This action will make available to the public a variety of radio-based interactive services. We believe that this allocation of radio spectrum is warranted in order to permit development of a convenient, low-cost system that provides two-way interaction with commercial and educational programming, along with informational and data services that may be delivered by, and coordinated with, broadcast television, cable television, wireless cable, direct broadcast satellite, or any future television delivery methods.

BACKGROUND

2. On December 2, 1987, TV Answer, Inc. (TV Answer) filed a Petition for Rule Making requesting an allocation of spectrum for the provision of interactive video and data services. TV Answer has developed technology designed to provide virtual real-time viewer response to educational and pay-per-view programming, as well as other commercial data applications such as home shopping and home banking. Additionally, it proposes to offer downloading of data that would provide up-to-date television program listings, video catalogs, educational texts, and future consumer data applications.

3. In response to TV Answer's original petition, and its subsequent filings that refined the technical aspects of its proposed system, the Commission released a Notice of Proposed Rule Making (Notice) on March 4, 1991.[1] In that Notice, we proposed: 1) to allocate spectrum in the frequency segment 218-218.5 MHz for IVDS, 2) to establish technical rules for the service, and 3) to promulgate regulatory and service rules establishing service areas and markets, licensing procedures, and construction benchmarks. We also solicited alternative proposals with regard to the amount of spectrum needed, alternative IVDS technologies, regulatory policies, and service rules.

DISCUSSION

4. After reviewing the record in this proceeding, we conclude that a consumer interactive service would serve the public interest. IVDS potentially can provide a multitude of services, offering alternative means for interactive television polling, home shopping, educational programming, access to information services, and other consumer-oriented two-way services. We also conclude that an allocation at 218-219 MHz will only minimally affect the existing services that are currently eligible to use, or that abut, these frequencies.

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1 See Notice of Proposed Rule Making, (Notice), 6 FCC Rcd 1368 (1991).

Spectrum Allocation

5. In the Notice we tentatively concluded that, with proper engineering and design, frequencies in the 218-219 MHz band could be used for IVDS without disruption or interference to TV Channel 13 television operations in the lower adjacent band, or to maritime operations on other frequencies within the 216-220 MHz band. Based on this conclusion, we tentatively proposed to allocate for IVDS use 500 kHz in the lower half of the 218-219 MHz band, from 218-218.5 MHz, as requested by TV Answer. Comment was requested on whether it would be more desirable to allocate the 218.5-219.0 MHz band, or to expand the allocation to include the entire 218-219 MHz band. The 218-219 MHz band currently is allocated for use by the Group C and D ship stations in the Automated Maritime Telecommunications System (AMTS).[2]

6. Comments. The majority of commenters support a spectrum allocation for IVDS use. However, their views differ with respect to the amount of spectrum that we should allocate and the location of that allocation within the 218-219 MHz band. Several commenters suggest that the upper half, instead of the lower half, of the 218-219 MHz band be allocated in order to minimize potential interference to TV Channel 13. Other supporters suggest that the Commission's proposal to allocate 500 kHz be expanded to a 750 kHz or 1 MHz allocation. Parties that oppose allocating spectrum for IVDS maintain that the existing maritime mobile allocation in the 216-220 MHz band should be retained and argue that alternate means of interacting with television programming obviate the need for an IVDS spectrum allocation.[3]

7. The Association for Maximum Service Television, Inc. (MSTV) supports the Commission's alternative allocation of the 218.5-219 MHz band for IVDS. MSTV contends that the additional frequency spacing that this allocation would afford TV Channel 13 operations would make television receivers tuned to TV Channel 13 less susceptible to interference by IVDS transmissions. The National Association of Broadcasters (NAB) also favors an IVDS allocation in the upper half of the 218-219 MHz band for the same reason.[4] Both NAB and MSTV state that allocating more than 500 kHz of spectrum for IVDS would be premature.[5]

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[2] AMTS is an integrated and interconnected maritime communications system serving ship stations and offshore fixed platforms. The AMTS band, 216-220 MHz, is divided into four groups of twenty 25 kHz paired coast and ship station channels: Group A, Group B, Group C, and Group D. See 47 CFR Section 80.475.

[3] Those parties cite alternate means such as wireline services and failed two-way cable attempts. See United States Telephone Association reply comments.

[4] NAB comments at 8.

[5] MSTV comments at 3; and NAB comments at 9.

8. Television broadcast stations also are potential users of IVDS technology and services. KCOP Television, Inc. (KCOP), licensee of channel 13 in Los Angeles, along with other broadcast interests, expresses support for the development of IVDS, but favors the alternate allocation of 218.5-219 MHz to reduce the possibility of interference. KCOP additionally notes that 218.5-219 MHz, allocated to the Group C AMTS ship station channels, is unused due to technical limitations that preclude AMTS use in many areas and is, therefore, appropriate for IVDS.[6]

9. Other parties argue for an IVDS allocation larger than 500 kHz, contending that 500 kHz would be insufficient for successful and competitive operation of IVDS systems. TV Answer, for example, states that while a minimum of 500 kHz is necessary for operation of its system, allocation of a full megahertz would serve the public interest in fostering competition by allowing two licensees per license area. Thus, TV Answer favors allocation of one megahertz of spectrum, from 218-219 MHz, with 500 kHz to be assigned to each of two licensees. Radio Telecom and Technology (RTT), a company proposing an alternative IVDS technology, also contends that 500 kHz is insufficient for accommodating competitive IVDS technology and service providers.

10. Educational television interests express concern that the Commission's proposal contemplating two commercial IVDS systems per license area would provide insufficient access for public service applications. While they offer several alternatives, their preferred solution is to divide the 218-219 MHz band into segments, 250 kHz of which would be reserved solely for non-commercial public service IVDS applications.[7] Some of these commenters also request that the Commission allocate additional spectrum outside the 218-219 MHz band, or in some other way guarantee non-commercial public access to IVDS capacity.[8]

11. The primary opposition to an IVDS spectrum allocation in the 218-219 MHz band originates with the maritime interests. Waterway Communications, Inc. (Watercom), which is licensed to operate on the Group A and B AMTS channels[9] in certain geographical areas, argues that the Commission failed in the Notice to consider the communications needs of the maritime community. Watercom states that this spectrum is needed by AMTS to eliminate blocking experienced at certain AMTS shore stations and to provide for future growth.[10] Further, Watercom contrasts the Commission's IVDS proposal with its proposal to the 1979 World Administrative Radio Conference (79 WARC), calling for allocating 9 MHz of VHF spectrum for the

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6 KCOP comments at 10.

7 Public Service Parties comments at 13.

8 CTW comments at 20; CPB comments at 16-17; and EBC comments at 8.

9 See footnote 2, supra.

10 Watercom comments at 12.

maritime mobile service, and with its subsequent rulemaking that implemented the current maritime allocation in the 216-220 MHz band.[11] It also charges that no need for IVDS has been demonstrated,[12] and that the TV Answer system has unresolved technical deficiencies.[13] Watercom concludes that no allocation is warranted for IVDS and that if the 500 kHz requested is not warranted, then the Commission's alternate proposal to allocate a full megahertz of spectrum certainly is unjustified.[14] The Radio Technical Commission for Maritme Services is in agreement with Watercom.[15]

12. In response to Watercom's argument that additional frequencies are now needed for AMTS, TV Answer commissioned an independent monitoring of Watercom's use of its assigned Group A and B frequencies.[16] TV Answer, based on its independent study, concludes that AMTS traffic has changed little since a similar study conducted in 1989, and that Watercom uses no more than eight of the forty channels assigned to it at any of its 55 AMTS locations.[17]

13. Decision. In the Notice, we stated that IVDS holds promise as a means of extending interactive services for both commercial and educational purposes to every household in the country. The record contains significant support for this conclusion. Thus, we continue to believe that greater public benefit will result from allocating spectrum in the 218-219 MHz band for IVDS, than by releasing the currently unused AMTS Group C and D channels for possible use by maritime interests. In addition, IVDS will provide service in spectrum that is technically unsuitable for many other services -- including AMTS -- because of its proximity to TV Channel 13. An IVDS allocation will also further the Commission's goals of encouraging the development of innovative communications services and promoting efficient use of the electromagnetic spectrum. The majority of commenters agree with our conclusion.

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11 Watercom comments at 3-4.

12 Id, at 13.

13 Watercom reply comments at 9-13.

14 Watercom comments at 13-25.

15 There are numerous additional comments filed by maritime interests opposing an IVDS allocation. The majority are single page letters, filed by users of Watercom's service, that appear to be form letters whose authors are under the false impression that the Commission is proposing to reallocate the AMTS frequencies currently in use.

16 TV Answer reply comments at appendix.

17 See Further Reply Comments of TV Answer, Inc. at 5, and at Exhibit 2, page 14 (November 27, 1991).

14. We have reached this decision after carefully considering its potential impact on AMTS service and, in particular, on Watercom, which currently is the only AMTS service provider. First, we recognize that communication needs and consumer demand for communication services evolve over time. Technology permits spectrum uses that were not available in 1979, such as cellular radio and Specialized Mobile Radio (SMR) services. These services now meet some of the maritime community's communication requirements. In addition, Watercom has not provided persuasive evidence that it has exceeded the capacity of the 40 Group A and B AMTS frequencies for which it is licensed, and therefore requires expansion into the Group C or D frequencies.[18] Therefore, it appears that the demand for AMTS service has not developed as originally envisioned and that maritime communication needs can be accommodated satisfactorily in the spectrum remaining for AMTS use. In particular, we note that even if additional communications capacity is required for AMTS, there are alternatives such as more efficient digital modulation techniques and channel splitting that can be employed to meet this increased demand.

15. Further, with regard to the AMTS service, the Commission noted at the inception of GEN Docket No. 88-372 that TV Answer had filed a petition to use a portion of unused AMTS spectrum (Group C and D AMTS ship station channels) for IVDS. Although the Commission proposed to relax the mileage restrictions on the use of those frequencies, it stated that the TV Answer petition would be considered concurrently.[19] In the First Report and Order in GEN Docket No. 88-372, the Commission concluded that the mileage restrictions on the Group C and D AMTS frequencies could be relaxed;[20] however, it delayed permitting use of the Group C and D frequencies until conclusion of the instant proceeding.[21] In order to meet future AMTS needs, the Commission allowed nationwide use of the geographically restricted Group

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18 Although Watercom disagrees with TV Answer's findings, it did not present conclusive data that would cause us to find differently. See Watercom Analysis of TV Answer Monitoring of AMTS Band (September 16, 1991).

19 See Notice of Proposed Rule Making, GEN Docket No. 88-372, 3 FCC Rcd 4736 (1988), at paras. 7 and 15.

20 See First Report and Order, GEN Docket No. 88-372, 6 FCC Rcd 4[illegible] (1991), at para. 19, at which it is noted that the Commission's conclusion was that subjecting the Group C and D frequencies to the same interference to TV reception criteria as the Group A and B channels would not increase the risk of interference. The Commission did not infer that it would be possible on the Group C and D AMTS channels, to build a viable AMTS system that would provide the requisite protection to TV reception and still meet the AMTS [illegible] percent coverage rule (see 47 CFR Section 80.475 (b)).

21 See First Report and Order, supra at paras. 2 and 19.

A and B frequencies.[22] Accordingly, the needs of the AMTS service were considered fully in GEN Docket No. 88-372, and our decision today is consistent with the actions taken in that proceeding.[23]

16. We also have thoroughly evaluated the issue of interference to TV Channel 13. We acknowledge that allocating spectrum only at 218.5-219 MHz would provide additional interference protection to TV Channel 13. However, in the Notice, we also clearly indicated that we were considering an allocation at 218-218.5 MHz partly in response to developments that occurred during the original comment period associated with TV Answer's rulemaking petition. That proposal and the associated technical requirements were based on an understanding between TV Answer and the Association For Maximum Service Television (MSTV) that IVDS and TV Channel 13 operations could co-exist with IVDS using 218-218.5 MHz.[24] Referring to technical modifications that TV Answer had filed, MSTV stated that "[M]STV believes that the latest proposals of TV Answer, if properly codified, would provide protection to TV Channel 13 viewers and stations sufficient to permit the spectrum allocation TV Answer seeks."[25] We concur with TV Answer and MSTV that TV Answer's proposal would permit an IVDS allocation in the 218-218.5 MHz band. If adequate protection could be provided to TV Channel 13 operations by IVDS operating at 218-218.5 MHz, then IVDS operations at 218.5-219 MHz would pose even less of a threat. Therefore, we conclude that interference concerns

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22 It should be pointed out that Watercom's petition that resulted in GEN Docket No. 88-372 addressed whether the basis of certain restrictive AMTS rules should be reexamined (see Petition for Rule Making of Waterway Communications, Inc., Public Notice Report No. 1640, January 30, 1987). That petition is not based on a requirement for additional spectrum. Neither Watercom nor any other party has demonstrated that spectrum beyond the expanded Group A and B frequencies is required.

23 There are several options available should the Group A and B channels become congested in the future. For example, AMTS operators could employ technologies that result in more efficient use of the existing frequencies. In addition, the Commission has allocated spectrum for generic mobile satellite services (MSS) and has proposed to allocate additional spectrum for MSS (See Report and Order, GEN Docket Nos. 84-1231, 84-1233, and 84-1234, 2 FCC Rcd 1825 (1986) that provides potential capacity for a similar service; see also Notice of Proposed Rule Making, GEN Docket No. 90-56, 5 FCC Rcd 1255 (1990)). MSS would almost certainly offer its various services to the maritime community. Further, in many areas cellular telephone service is also available for use by the maritime community.

24 See, TV Answer, Inc. reply comments (July 13, 1990), and of MSTV comments (July 30, 1990), concerning technical amendments filed by TV Answer's in RM-6196.

25 MSTV comments (July 30, 1990) at 1.

with respect to TV Channel 13 do not preclude us from allocating any or all spectrum in the 218-219 MHz band.[26]

17. In order to provide for competition in each IVDS market, to allow competing IVDS technologies to operate as effectively as their designers intended, and to provide sufficient capacity for the various services envisioned by commenters in this proceeding, adequate spectrum must be allocated. TV Answer has stressed continuously that it needs a minimum of 500 kHz to accommodate the system it has already designed. TV Answer states that, in a given market, the number of channels that two 500 kHz segments would provide would allow for proper frequency coordination and market coverage among competing providers using its technology. RTT, which contends that its technology could use the entire 216-220 MHz band without causing perceptible interference to TV Channel 13, suggested an allocation of 2 MHz, but, as a minimum, currently requests at least 400 kHz.[27] In addition, potential IVDS applications have expanded to include many services not envisioned originally.[28] Accordingly, limiting IVDS to two 250 kHz segments might inhibit the full development of IVDS technology, slow the introduction of service and thwart the emergence of competitive providers of IVDS offerings.

18. We thus believe that allocating the entire 218-219 MHz band for this service is in the public interest. As stated by the many supporting parties, IVDS has many potential applications that could have wide ranging consumer appeal and creative educational use. In addition, this service has the potential to reach every television household in the United States. Conversely, AMTS service serves a much more restricted group, mainly commercial maritime entities. Further, unlike AMTS operation on Group C and D frequencies, IVDS, with its much lower signal levels, can more effectively use the spectrum without causing interference to television operations. Given the choice of maintaining the current Group C and D AMTS allocation that might not be implemented, even with removal of mileage restrictions, or allocating spectrum for IVDS, we believe that the public interest is best served by allocating 218-219 MHz to IVDS.

19. Educational and public service entities express concern that allocating only 500 kHz for two IVDS providers could leave little capacity for non-commercial applications. Their preferred solution is to set aside specific IVDS spectrum for non-commercial public service applications. We believe that educational interests should have access to IVDS systems

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26 In addition, we are adopting stringent interference rules to ensure that TV Channel 13 signals are further protected. See paras. 45-51 infra; see also new § 95.861, infra, Appendix A.

27 Comments of RTT at 8 and Technical Statement of RTT at 4.

28 For example, the Public Service Parties request that spectrum for non-commercial use be set aside for use such as providing a means for interactivity in a school system, see Public Service Party comments at 11-13.

and, indeed, that interactive technology has promising educational potential. However, we believe the better course is to allocate sufficient spectrum for a competitive market structure and for full development of a wide range of services, including educational applications. Thus, we feel that it would be premature to set aside spectrum for specific uses. Therefore, we will not reserve IDVS spectrum solely for non-commercial use. We do, however, encourage future IVDS licensees to make reasonable provision for educational and public service applications.

20. Finally, because our decision is necessarily based on prediction, we also note that we could initiate a reallocation proceeding in the future if the demand that we anticipate for interactive video and data services does not materialize. As noted, existing AMTS users and IVDS proponents disagree about the need to allocate the entire 1 MHz to IVDS. We intend to observe the development of IVDS and the future growth of AMTS to ensure that the public interest associated with these competing uses is adequately served. If necessary, we will not hesitate to reclaim part of the 218-219 MHz band if IVDS proves to be underused and AMTS, even after deploying more spectrally efficient technology, generates demand that overwhelms the capabilities of the 3 MHz of spectrum that remains allocated for the service.

Operational Requirements

21. As we stated in the Notice, technical requirements for IVDS must be designed to ensure that harmful interference is not caused to TV Channel 13 operations in the nearby 210-216 MHz band and to adjacent AMTS operations. Another consideration is that technical rules be sufficiently flexible to allow alternative IVDS technologies. For the most part, the technical limitations we proposed in the Notice were based on TV Answer's revised system design and interference prevention proposals.

22. Interactive Systems, Inc. (ISI) requests that we do nothing that might lead to the establishment of any interactive system as the de jure or de facto standard.[29] Similarly, RTT states that technical rules should be flexible and open to new ideas and innovations.[30] Vision Integrated Marketing suggests we provide a forum for the creation of standards that allow the industry to develop alternative IVDS technologies.[31] Other parties commenting on technical standards suggest specific changes to our proposed rules.

23. After considering the comments pertaining to specific technical

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29 Interactive Systems, Inc. comments at 2.

30 RTT's comments at 9.

31 Vision Integrated Marketing comments at 1.

parameters, and our own analysis,[32] we are modifying our original technical proposals as discussed below. Our revised technical requirements will reduce the potential for interference to adjacent services, while being sufficiently flexible to allow alternative technologies. In addition, we are requiring that every cell transmitter station (CTS) and response transmitter unit (RTU) be type-accepted for use in the IVDS in accordance with Subpart J of Part 2 of the Commission's Rules and the technical standards specified in this subpart.

24. CTS Power. We proposed limiting the effective radiated power (ERP) of an IVDS CTS and RTU to the minimum ERP necessary for successful two-way communication, but in any event not to exceed 20 watts. We also proposed, in the text of the Notice, to require automatic control of RTU power level by the CTS. For an IVDS system located in a TV Channel 13 service area, additional CTS operating limitations were proposed.[33]

25. Comments. TV Answer supports the proposed ERP limits of the Notice, although it claims that under many circumstances even higher maximum ERPs could be used without causing objectionable interference to TV Channel 13 operations.[34] MSTV states that its analysis indicates that while the proposed power levels would adequately protect TV Channel 13 operations, the signal strengths of both TV and IVDS might deviate substantially within a given service area due to variations in terrain and other obstacles. MSTV further argues that since IVDS signals are expected to emanate from multiple transmitters, there is a greater potential for interference from IVDS base stations than predicted levels indicate.[35] Other broadcasters also express fear that an IVDS system operating at the maximum power levels will interfere with TV Channel 13 transmissions.[36] Consequently, a number of broadcaster interests, including MSTV, propose that we use the measured TV signal strength to determine the maximum power to authorize a specific IVDS system[37] or, in the alternative, that we authorize a much lower maximum power.[38] In addition, Thomson Consumer Electronics argues that operation of IVDS in-home units at the proposed maximum power levels would interfere with

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32 See "Test Report, TV Answer Interference Tests," Project Number 91-10, Office of Engineering and Technology, January 10, 1991, placed in the record in this proceeding for informational purposes.

33 See Notice at para. 14.

34 TV Answer reply comments at 14.

35 MSTV comments at 4.

36 KCOP comments at 11.

37 MSTV comments at 4-5, KCOP comments at 4-7, NAB comments at 7.

38 KCOP comments at 12.

operation of consumer electrical and electronic equipment, other than television receivers, commonly found in the home.[39]

26. Decision. We continue to find that the predicted grade B signal contour of the Channel 13 TV station[40] is the most appropriate basis for determining the maximum power levels for IVDS CTSs.[41] In most other services the Commission relies on predicted rather than measured field strengths in determining interference potential.[42] The ERP proposals in the Notice were based upon supplemental filings made by TV Answer that relied upon predicted TV Channel 13 signal contours to calculate its revised ERP limits.[43] MSTV, in responding to those revisions, stated that "[T]V Answer and MSTV have worked constructively to resolve the serious interference questions raised by TV Answer's initial proposal and analyses;"[44] and that "[M]STV believes that these latest proposals of TV Answer, if properly codified, would provide protection to TV Channel 13 viewers and stations sufficient to permit the spectrum allocation TV Answer seeks."[45] Those commenters arguing that our proposed power levels either are too high, or that authorized CTS power levels should be based on actual measurements of TV Channel 13 signals, fail to provide technical analyses with alternative power limits which we could compare to those mutually agreed upon by TV Answer and MSTV. In addition, we note that measured field strength values can vary substantially over time and under changing environmental conditions, and therefore we conclude that using actual rather than predicted field strength to determine base station power limits would be unreliable and unnecessarily burden both IVDS licensees and the Commission. Further, our overall requirement that an IVDS licensee investigate complaints regarding interference to local television reception and, if it is determined that transmitters of the IVDS system are at fault, correct that interference or cease operating the offending IVDS CTS or RTU units, will resolve interference in those situations in which actual operating conditions result in signal levels different from those predicted that lead to harmful interference. Accordingly, we are adopting our proposal to limit the maximum ERP for a CTS to 20 watts and to require automatic power control as shown in attached Section 95.855.

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39 Thomson Consumer Electronics comments at 13.

40 See 47 CFR Section 73.683, which uses the Grade B contour as the interference contour of a TV signal and notes that under actual conditions the coverage area may vary greatly from the predicted area due to the difference between actual terrain and average terrain.

41 See Notice at para. 14.

42 For example, see 47 CFR Sections 74.705(a) and 80.215(h)(2).

43 See Reply of TV Answer, RM-619[illegible] filed July 13, 1990.

44 See Comments of MSTV, RM-619[illegible] July 30, 1990) at 2.

45 See Comments of MSTV, supra, at 1.

27. With regard to Thomson's concern about interference to the operation of other electrical and electronic equipment typically found in locations where a RTU would be located, we find that this concern is addressed under the requirements contained in Part 15 of our Rules.[46] We fail to discern any utility in adopting special interference rules for IVDS systems.

28. CTS Antenna Height. We proposed requiring that the CTS antenna be no higher than necessary to assure adequate service and that in no case would the maximum antenna height above average terrain (HAAT) be permitted to exceed 120 feet (36.6 meters) when the antenna is located 10 miles or less outside of the Grade B contour of a TV Channel 13 station.

29. Comments. TV Answer states that given the power limitations proposed, the proposed CTS antenna height limit is unnecessary.[47] On the other hand, MSTV and other commenters concerned with IVDS interference potential to TV Channel 13 reception support the HAAT limitation proposed in the Notice.[48]

30. Decision. The antenna height limit was part of the revisions TV Answer made to its original proposal to address potential interference to TV Channel 13 reception. That limitation, in association with our adopted power limits, will help to ensure that IVDS signal levels remain sufficiently low to reduce the potential for interference to TV Channel 13 reception. Therefore, we will adopt a general requirement that a CTS antenna not exceed a maximum HAAT of 36.6 meters (120 feet) unless the antenna site is located more than 16 kilometers (10 miles) from the Grade B contour of a TV Channel 13 station. For a CTS antenna site located more than 16 kilometers outside the Grade B contour of a TV Channel 13 station, the maximum HAAT will be 152.5 meters (500 feet) as proposed in the Notice.[49]

31. As a practical matter, we realize that in certain instances it might be impossible to observe the required HAAT limits and still provide adequate coverage of a given market.[50] Therefore, we will consider waivers of the HAAT limits on a case-by-case basis. An IVDS system operator requesting such a waiver should submit a showing justifying an exception to the HAAT limits accompanied by an adequate technical analysis demonstrating that its proposed CTS signal level would be no greater than the level that would result if the licensee adhered to the general CTS power and HAAT

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46 See 47 CFR Section 15.17.

47 TV Answer comments at 22-23.

48 MSTV comments at 5.

49 Subject to the provisions of 47 CFR § 95.51.

50 For example, acceptable coverage may be difficult to provide in so-called "urban canyons."

limits.[51] We emphasize that the IVDS licensee will remain totally responsible for resolving complaints of interference to any television receiver caused by any component of its IVDS system.

32. Minimum separation distance. In the Notice, we invited comment on our proposal to require a 200 foot separation between an IVDS base station (CTS) and nearby residences in order to minimize potential interference from CTSs to televisions that might be operating in the vicinity.

33. Comments. MSTV supports requiring a minimum 200 foot separation distance between a CTS and adjacent residences. Additionally, KCOP suggests that the rules require base station mileage separations of four miles to prevent overlapping IVDS signals from creating a stronger combined interfering signal.[52] TV Answer, however, argues that such a requirement would destroy operational flexibility and is unnecessary to prevent interference due to the proposed power limits and filter requirements.[53]

34. Decision. Given the transmission rates and power levels at which the base stations in a system such as TV Answer's would operate, we believe that a minimum separation distance is necessary to protect nearby television receivers in TV Channel 13 service areas. Accordingly, to avoid the potential for interference, we will adopt a minimum CTS-to-nearest residence separation distance of 61 meters (200 feet) as proposed in the Notice. We are not persuaded, however, that overlapping IVDS signals would increase the interference potential of an IDVS system. We thus find that KCOP's suggestion that base stations be separated by four miles would serve no technical purpose and could make it impossible for IVDS licensees to provide coverage to their markets.

35. In-home units. We proposed in the Notice that the in-home unit, or RTU, be limited to a maximum ERP of 20 watts, that it incorporate automatic power control in order to ensure use of the minimum power necessary to communicate with its CTS, and that the RTU antenna be an integral part of the unit itself. These limitations were proposed to decrease the potential for interference from a subscriber's RTU to neighboring TV receivers. In the Notice we also noted that the operational characteristics of TV Answer's RTU design were such that transmissions would occur infrequently and be of limited duration.

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[51] We also would consider waivers of the HAAT limits when IVDS stations are co-located with a TV channel 13 transmitting antenna, such as suggested by RTT, or when other measures are taken to avoid interference with TV operations.

[52] KCOP comments at 11.

[53] TV Answer reply comments at 17.

36. Comments. TV Answer contends that requiring a RTU antenna to be an integral part of the unit itself is unnecessary and would restrict severely the usefulness of IVDS. It argues that in a multi-unit residential building, installation of a master rooftop antenna for all RTUs within the building might be necessary.[54] MSTV supports our proposal that RTUs incorporate automatic power control and requests that the rules specify that an IVDS system be designed to control from the CTS RTU power levels and the length of time that any one RTU may transmit per hour. Both MSTV and NAB argue that an RTU's maximum duty cycle should be limited in the rules. For example, MSTV suggests that the rules prohibit the maximum duty cycle from exceeding five seconds per hour.[55] KCOP also suggests that we place a specific limit on the duty cycle of these intermittent transmissions as a method of minimizing interference.[56]

37. Decision. Our principal technical concern in this proceeding is that IVDS systems not cause interference to other services. We believe that the power limits and other technical requirements contained in the attached rules adequately address that concern. We will thus adopt a maximum ERP limit of 20 watts for RTUs and our proposal that each RTU incorporate automatic power control to limit the maximum ERP to the minimum necessary for successful communication with its CTS. With regard to RTU antennas, we agree with TV Answer that the proposed integral antenna requirement could in some instances unnecessarily restrict IVDS operations. On the other hand, we remain concerned that the unrestricted ability to readily connect the RTU to an exterior antenna could lead to instances of possible interference. Therefore, we will require that all RTUs marketed to and installed by an individual IVDS subscriber include an integral antenna. RTUs that use exterior antennas will also be permitted, if installed by the IVDS system operator in connection to a master antenna system. However, we will require that the external antenna not exceed 6.1 meters (20 feet) above ground or existing man-made structure (other than an antenna structure).[57]

38. We also concur with NAB, MSTV and KCOP that the maximum duty cycle of the RTU should be specified in the rules. We believe that specifying a maximum duty cycle will provide an additional interference safeguard. We believe, however, that the five seconds per hour duty cycle suggested by MSTV might unnecessarily inhibit some IVDS system designs and operations, particularly those RTUs transmit extremely short bursts of information such as in the proposed TV Answer system. Therefore, we will require that the maximum duty cycle of the RTU not exceed five seconds per hour as suggested by MSTV; or alternatively, that the maximum duty cycle of the RTU not exceed one percent within any 100 millisecond interval.

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54 See TV Answer comments at 23; and reply comments at 18.

55 NAB comments at 5-6; MSTV reply comments at 6.

56 KCOP comments at 12.

57 See 47 CFR § 17.4.

39. Emissions. In the Notice, we proposed a pulsed data type of emission (V1D) for IVDS. To minimize interference to both TV Channel 13 and adjacent channel AMTS operations, we proposed limiting IVDS out-of-band emissions and proposed a frequency tolerance of 0.0005 percent. See proposed Sections 95.859, 95.861 and 95.863. These proposals were based generally on TV Answer's filings in this proceeding.

40. Comments. TV Answer does not oppose our proposed requirements. It does suggest, however, that we permit any emission type that complies with the out-of-band limits specified in proposed Section 95.861.[58] RTT states that type V1D is broad enough to allow a variety of modulation techniques; however, it too suggests that other emission types be permitted.[59]

41. Decision. We will not limit emissions to class V1D. Both TV Answer and RTT argue persuasively that such a limitation would be an unnecessary restriction on system design. We believe that interference concerns are sufficiently addressed by our other operational requirements. Therefore, we will allow emission types and frequency tolerances that comply with the out-of-band limits specified in Sections 95.857 and 95.861 of our new rules, see Appendix A.

42. Channelization. In the Notice we observed that the TV Answer system divides the allocated spectrum into discrete channels, then uses the channels within the system in a cellular-like manner. We stated that we saw no reason to require IVDS operators to use such channelization. Rather, in order to allow the use of alternative technologies, we proposed that licensees make their own decision with regard to channelization.[60]

43. Comments. TV Answer argues that channelization would protect TV Channel 13 operations by forcing systems into a lower power cellular arrangement, would provide universal IVDS coverage, and would promote efficient use of the spectrum.[61] TV Answer also argues that channelization would simplify coordinating competing IVDS systems in the same market. Conversely, RTT contends that requiring channelization would preclude alternate technologies. Further, RTT argues that TV Answer's contention that unless channelization is adopted it will preclude IVDS service over large areas is untrue, although channelization might limit the TV Answer design.[62]

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58 TV Answer comments at 24.

59 RTT reply comment technical statement at 8.

60 See Notice at para. 17.

61 TV Answer reply comments at 11.

62 RTT reply comment technical statement at 3.

44. Decision. We are not persuaded that we should require channelization in IVDS systems. No significant additional protection would be afforded to TV Channel 13 operations through channelization. Our power, HAAT, and out-of-band emission limits should adequately protect TV Channel 13 operations,[63] regardless of the manner in which the system is channelized. In addition, we are not persuaded that requiring channelization would improve the potential coverage of an IVDS system, as TV Answer contends. We believe that satisfactory coverage can best be obtained if IVDS licensees coordinate competing systems in the same market and structure their systems in a manner that provides adequate coverage. We also agree with RTT that a channelization requirement might preclude future alternative systems or technologies. Therefore, IVDS licensees are free to choose any channel plan that suits their operations. Licensees with different technologies and channel plans, however, must cooperate to minimize in-band (218-219 MHz) interference.

45. Interference prevention. We proposed to require IVDS licensees to inform all television households located within the Grade B TV Channel 13 coverage area of the potential for interference from an IVDS system. In addition, we proposed that licensees of such systems be required to provide and install, free of charge, an interference reduction device to each household within the Grade B contour of a TV Channel 13 station that experiences interference from the IVDS system. We also proposed requiring the IVDS licensee to investigate and eliminate such interference within 30 days of the time it is notified in writing of an interference complaint. If the interference is not eliminated within the 30-day period, operation of the offending transmitters of the IVDS would have to be discontinued. See proposed Section 95.855.

46. Comments. The NAB requests that we mandate, for all IVDS service, all technical aspects of the TV Answer system that afford increased interference protection to the affected TV Channel 13 station.[64] The NAB states that the ultimate interference potential of large numbers of IVDS transmitters in homes is difficult to predict and justifies implementation of any and all possible technical safeguards to protect existing television channel 13 service.[65] Thomson Consumer Electronics, Inc. requests that we require TV Answer to conduct additional tests to fully determine the extent of possible interference with all broadcast and cable channels.[66] MSTV requests that we extend IVDS interference protection obligations to TV translator stations.[67] Fox Television Stations, Inc. would extend this

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63 AMTS coast and ship station operations in the adjacent bands also will be adequately protected by these limits.

64 NAB comments at 3.

65 NAB comments at 6.

66 Thomson comments at 14.

67 MSTV comments at 10-11.

protection to low power TV stations in addition to TV Channel 13 translator stations.[68]

47. KCOP states that our proposal to require IVDS licensees to resolve interference complaints does not impose a time period for when an IVDS licensee must inform TV households about potential IVDS interference. KCOP suggests that we require IVDS licensees to mail notifications to households no more than two weeks before and no more than two weeks after initiation of IVDS service, and that we require licensees to provide similar notification to all households in TV Channel 13 service areas twice per year for the first two years of service and once each year thereafter.[69] EBC also recommends use of this notification schedule, but would require the IVDS licensee to notify all households within the TV station's actual Grade B contour rather than just the IVDS operator's own customers.[70]

48. KCOP also believes the rules should require IVDS licensees to install filters on every television in the households of their own subscribers at the time IVDS is installed in a TV Channel 13 viewing area.[71] Fox Television Stations states that a notch filter may not be effective in eliminating all interference.[72] The NAB asserts that retrofitting existing receivers with notch filters is no substitute for proper spectrum management.[73]

49. Decision. We continue to believe that the interference elimination plan first offered by TV Answer and then made a proposal in the Notice strikes a reasonable balance between our strong desire to protect television reception from potential IVDS interference and our interest in not placing an undue burden on the IVDS licensee. With regard to questions raised by commenters, such as the NAB, concerning the prediction of interference potential of large numbers of IVDS transmitters, or the efficacy of interference reduction devices, we again emphasize that the overall requirement is that IVDS systems not cause harmful interference to television reception. This requirement must be met regardless of the television channel experiencing interference due to IVDS operations. If it is determined that an IVDS system, or parts of that system, are the cause of harmful interference to television reception, the IVDS licensee will be responsible for eliminating all unwanted interference caused by his system. If that interference cannot be eliminated, as suggested by Fox, through installation of an interference reduction device such as a notch filter, the

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68 Fox comments at 4.

69 KCOP comments at 13.

70 EBC comments at 5.

71 KCOP comments at 13-14.

72 Fox comments at 5.

73 NAB comments at 11.

IVDS system licensee will be required to seek other measures, including cessation of operation of offending transmitters. It should be noted that an IVDS subscriber might experience some interference to its television reception when operating the RTU. Therefore, it might behoove the IVDS licensee to install interference reduction devices on the television receivers of its subscribers. However, we will not make this a requirement separate from our requirement that IVDS systems not cause interference to television reception. It will be at the subscriber's discretion as to whether sporadic interference to his own household television reception that might be caused by RTU operation is unacceptable. If such potential interference occurs, is found to be unacceptable, and cannot be eliminated by the IVDS operator, the subscriber could choose to discontinue IVDS service.

50. With regard to the notification schedule proposed by KCOP, we feel that schedule is overly burdensome. However, we agree that the time period for notifying TV viewing households of the potential for interference from IVDS needs to be stated precisely. KCOP's suggestion that we require IVDS licensees to mail notifications to TV households no more than two weeks before and no more than two weeks after initiation of IVDS service in the area is a reasonable one. Accordingly, we will adopt the general interference potential notification and reduction procedures set forth in the Notice, modified by KCOP's initial notification suggestion as stated above. See Section 95.861, set out in Appendix A.

51. With regard to TV translators and low-power TV stations, we note that these are secondary services and receive no interference protection from primary stations in the broadcast bands. We will not require IVDS licensees to protect these secondary services.

Regulatory Structure

52. Scope. We proposed in the Notice to regulate IVDS service as a new private carrier radio service. Further, to provide flexibility and minimize licensing burdens, we proposed to treat IVDS as a personal radio service under Part 95 (47 CFR Part 95). We also proposed to make assignments on an exclusive basis.

53. Comments. TV Answer agrees that IVDS should be regulated as a private radio service and that locally defined service areas will result in licensees being more responsive to local needs.[74] Southwestern Bell Telephone Company (SWBT) argues that state or federal regulation over IVDS is unnecessary, and that IVDS is not an essential service.[75] The United States Telephone Association (USTA) argues that with only two licensees per market it is important that an IVDS licensee not have incentives to turn IVDS into a vehicle for securing private monopoly rents by limiting use of its assigned spectrum. USTA contends that IVDS should be made available

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74 TV Answer comments at 10.

75 Southwestern Bell Telephone reply comments at 2.

only on a common carrier basis.[76] Metscan, Inc. and Integrated Communications Systems, Inc. suggest that the scope of IVDS be broadened to include such applications as remote meter reading and advanced energy management by power companies.[77]

54. Decision. The purpose of IVDS is to provide information, products, or services to individual subscribers and to accept interactive responses from subscribers. Because we envisioned IVDS services to be of a personal nature and offered on a subscription basis, and because we wanted to provide as much flexibility as possible, we proposed to regulate IVDS as a private carrier under Part 95. The majority of comments supported our proposal. We continue to believe that IVDS licensees should be treated as private carriers rather than common carriers. First, IVDS providers will not hold themselves out to serve the public indiscriminately.[78] Although services will be offered on a subscription basis, the providers will be free to determine to whom, and on what terms, service will be offered. Second, we find no public interest reason to impose a legal requirement that IVDS carriers hold themselves out as providing service to the public indiscriminately given the competitiveness of the market for interactive services.[79] For example, there are two frequency segments available in each service area or market. Consequently, there is the potential for two IVDS providers in each market, making possible direct competition. In addition, licensees providing IVDS service face competition from other technologies such as the public switched telephone network and interactive (two-way) cable television based systems. Finally, IVDS is not an essential service.[80] Therefore, we will regulate IVDS as a private carrier.[81]

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76 United States Telephone Association reply comments at 4.

77 Metscan, Inc. comments at 5; Integrated Communications Systems, Inc. reply comments at 10.

78 See generally National Assn of Regulatory Commissioners v. FCC, 525 F.2d 630, 641-42 (D.C. Cir. 1976) (Specialized Mobile Radio Systems held to be private carriers), cert. denied, 425 U.S. 992 (1976).

79 See also In re Norlight, Request for Declaratory Ruling, 2 FCC Rcd 132 (1987), aff'd, 2 FCC Rcd 5167 (1987). In Norlight we similarly found no reason to impose a legal compulsion to provide service to the public indiscriminately. Because there was no such legal compulsion, and because there was no "holding out" as providing service indiscriminately to the public, we concluded that the proposed interstate fiber optic system at issue in that case would constitute a private carrier system.

80 Purchase of IVDS by the consumer is purely discretionary.

81 We note that Congress has given us exclusive jurisdiction over the regulation of non-common carrier radio services. Accordingly, state and local rate and entry regulation of such services is preempted by the Communications Act. Compare California v. FCC, 798 F.2d 1515 (D.C. Cir. 1986).

Because IVDS is consumer oriented and provides a personal service, and to provide flexibility, we will regulate it under Part 95 of our Rules. We will also make frequency assignments in this service on an exclusive basis.[82] The rules proposed in the Notice, however, were written in terms of TV Answer's system. Consistent with our efforts herein to provide for alterative technologies and services, we have modified our rules to give licensees additional flexibility to better serve the market.[83]

55. System description. We proposed that an IVDS system consist of a single cell or a number of interconnected cells, each cell having a CTS and multiple RTUs as components of the system. We proposed that the RTU be located in the residence of a subscriber.

56. Comments. TV Answer agrees that IVDS should be provided using a cellular-type plan, stating that multiple CTSs will be needed to cover the service area.[84] TREM Industries also envisions a cellular system design.[85]

57. Decision. We will adopt the basic two-way CTS-to-RTU communications system description proposed in the Notice. To be consistent with our emphasis on flexibility, however, our rules will allow licensees to provide additional services, such as data base access, that require use of a personal computer. We have also provided for RTUs to be located at places other than a subscriber's residence. This change will allow IVDS to be provided, for example, at private offices, educational institutions, government agencies, and public service locations.

58. Service Area. We proposed defining the service area (i.e., the area where a system licensee would have exclusive use of the frequency segment) as a 64.4 kilometer (40 mile) radius from a reference set of coordinates (point-radius approach) determined by the license applicant. We requested comment, however, on alternative definitions for the service area,

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82 The term "exclusive" as applied herein to the licensing process means that a licensee is the only party authorized to transmit in the assigned frequency segment in the service area the licensee is authorized to serve.

83 For example, licensees will be able to provide subscribers access to data bases by using a personal computer for interaction and services rather than requiring the subscriber to be viewing a television. We decline, however, to allow IVDS spectrum to be used primarily for the purpose of providing communications for remote meter reading and energy management operations. Entities interested in establishing their own communications systems for these types of operations should establish systems pursuant look to Parts 90 and 94 of our rules. If, however, IVDS licensees have sufficient capacity they may provide such service, at the licensee's discretion, on a limited basis.

84 TV Answer comments at 15, 17 and Engineering Statement, Figure 1.

85 TREM Industries comments at 1-8.

including definitions based on Metropolitan Statistical Areas (MSAs), as we do for cellular operations; on Designated Filing Areas (DFAs), as we do for private land mobile 900 MHz operations; and on a nationwide service area. See Notice, paragraphs 21-23.

59. Comments. TV Answer opposes our proposal to define service areas using a licensee-defined point-radius approach. TV Answer states that it is unclear how we would determine which applications are mutually exclusive and that the delay and administrative burden inherent in the proposed system would delay service to the public. It proposes instead that we use the 734 MSA and RSA cellular radio telephone service areas as the IVDS service areas. Pre-designated filing areas, according to TV Answer, would eliminate areas unable to be served by any licensee (white areas) because licensees would file applications according to the proposed market to be served; would establish the basis for determining if applications are mutually exclusive; and would establish a boundary for interference protection.[86]

60. Vision Integrated Marketing recommends that service areas be no smaller than major metropolitan areas.[87] MSTV argues that we should license IVDS on a nationwide basis, stating this would result in equipment being standardized, thus providing a more efficient and uniform basis for technical standards and type acceptance procedures.[88] Home Shopping Network, Inc. (HSN) suggests that we should make one segment available on a national basis and agrees that more than one license should be made available per market.[89] HSN also states it opposes any restraint on multiple or cross-ownership other than a prohibition on multiple interests in applications or systems within the same IVDS market.[90] Vision Integrated Marketing, Inc. states that a nationwide licensee would be acceptable as one of the two licensees in a particular service area, provided that the one national licensee was prevented from having an unfair competitive advantage.[91]

61. Decision. We have considered suggestions that we grant a nationwide license for one of the IVDS frequency segments and we have decided not to adopt this suggestion. We believe that reserving one of only two frequency segments for a nationwide licensee is antithetical to our goal of fostering a competitive market in IVDS communications and would unnecessarily restrict the flexibility of entities that wish to use IVDS to market their products or services. A marketer of a product that requires

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86 TV Answer comments at 10-17.

87 Vision Integrated Marketing comments at 2.

88 MSTV comments at 9-10.

89 Home Shopping Network, Inc. comments at 1.

90 Home Shopping Network, Inc. comments at 2.

91 Vision Integrated Marketing, Inc. comments at 1.

regional or nationwide exposure can enter into agreements with the appropriate local market IVDS licensees if it so desires, thereby obtaining coverage of the desired area. It also is possible that a network will connect individual licensees and supply them with material that is distributed to an area greater than that of a local licensee.

62. We are persuaded by the comments, however, to modify our definition of an IVDS local service area. We agree that pre-designated filing areas will reduce the administrative burdens on both the public and the Commission. Further, pre-designated filing areas will eliminate daisy-chains and thus allow the Commission to license IVDS systems much more quickly, especially in the more populated areas of the country. Accordingly, we will define IVDS service areas, the areas where the frequency segment is licensed on an exclusive basis, in terms of the cellular service areas.[92] These cellular service areas are well known to the communication industry and cover the entire country.

63. Selection of Licensees. We proposed selecting among mutually exclusive applicants using a lottery process pursuant to Section 1.972 of our Rules. We also proposed that applications be granted on a first-come, first-served basis. We asked for comments, however, on whether we might alternatively use comparative hearings and auctions.

64. Comments. The Action Exchange states it strongly favors the lottery method for awarding IVDS licenses.[93] HSN states that selection among competing applicants should be made by lottery without any weighting based on the intended use of the system or based on characteristics of the owners or the applicants.[94] TV Answer states it supports use of lotteries as long as the Commission pre-designates service areas and assigns it one of the two licenses in one of the service areas based on a Pioneer's Preference. TV Answer also states it would support the use of auctions, were there not serious questions as to our authority to conduct a competitive bidding licensing process.[95] Jewell Television Corporation requests that television stations within the proposed IVDS service areas be given a preference in the lottery process.[96] Vision Integrated Marketing states that a first-come first-serve lottery approach is best. Vision suggests, however, that the system be modified to provide a short period to give competing licensees time "to work it out."[97]

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92 See Public Notice, Report No. 92-40, released January 24, 1992.

93 The Action Exchange comments at 1.

94 Home Shopping Network, Inc. at 2.

95 TV Answer comments at 27-28, 34.

96 Jewell Television Corporation comments at 2.

97 Vision Integrated Marketing comments at 3.

65. Decision. We have analyzed carefully the comments on this issue. Selecting among mutually exclusive applicants in each service area using a lottery appears to be the best method available at this time to provide for early introduction of IVDS services and to minimize licensing burdens on both the Commission and the public. As we stated in the Notice, we believe that selecting IVDS licensees on the basis of comparative hearings would be expensive for the IVDS applicant, administratively complex for both the applicant and the Commission, and would delay introduction of this new service. Therefore, we will select among mutually exclusive IVDS applicants in each service area using the lottery process specified in 47 CFR § 1.972. However, consistent with other private radio services, such as the General Mobile Radio Service (GMRS) which also is regulated under Part 95, we will not award preferences based on the type of service provided by the IVDS licensee or on the characteristics of the IVDS applicant.

66. We will announce by Public Notice the date on which the Commission will accept applications for IVDS licenses and other pertinent information. We will not issue licenses, however, until the first IVDS transmitter has been type accepted for operation in this service. An applicant can either wait until the equipment it plans to use is type-accepted and available or, alternatively, risk losing its license if lack of type-acceptance or lack of equipment availability causes failure to meet the station construction requirements (See paragraphs 71-77). We do not intend to relieve any IVDS licensee of the construction requirements on the basis that development or deployment of technology or equipment took longer than anticipated.[98] This policy is consistent with our approach to licensing stations in the 220-222 MHz band under 47 CFR Part 90.

67. Licensing Procedure. In view of the potentially large numbers of IVDS transmitters that might be used in a single system, we proposed a blanket licensing scheme in which all CTSs and RTUs in a given area would be licensed under a single system license. We proposed to use FCC Form 574 which would require a $35.00 charge per call sign.

68. Comments. Most of the comments did not explicitly address whether the RTUs should be licensed under a system license, but rather appear to assume that IVDS would be provided as an integrated system.[99] TV Answer agrees with our proposal that CTSs and RTUs should be licensed to the system licensee under a blanket license.[100] TREM Industries also envisions a "system" consisting of central control facilities and user interfaces (the RTUs), both controlled by the system provider.[101]

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98 See Report and Order, PR Docket No. 89-552, 6 FCC Rcd 2365, at para. 69.

99 MSTV comments at 6-7, KCOP reply comments at 6.

100 TV Answer comments at 27.

101 TREM Industries comments at 1-8.

69. Decision. We continue to believe the system licensing approach has merit. There are, however, certain cases in which we must review individual station parameters. Therefore, we will blanket license all CTSs that do not require individual review under an IVDS system license. Further, all RTUs associated with these CTSs will be blanket licensed under the same license. By contrast, CTSs that require special administrative review, such as (1) CTSs that are in the vicinity of certain receiving locations,[102] (2) CTSs that may have significant environmental effect,[103] (3) CTSs that require notification to the Federal Aviation Administration,[104] and (4) CTSs with antennas that exceed 6.1 meters (20 feet) above ground or an existing man-made structure other than an antenna tower, will not be blanket licensed, but rather must be individually licensed.[105] Consistent with our approach to regulate IVDS as a personal service under Part 95, we will use FCC Form 574 as the application form.[106]

70. Because of the limited spectrum available in each market (two frequency segments) and the fact that there appears to be a substantial number of entities interested in this service, we anticipate receiving more IVDS applications than we can accommodate, especially in the major markets. In markets where the number of applications exceeds the number of licenses that can be granted, we will rely on a lottery to select among competing applicants (see paragraphs 65-66). In the past, applicants have asserted that there is no need to file all the information required on a Form 574 in order to enter a lottery and that doing so substantially delays the licensing process.[107] In this case, we agree. Accordingly, to minimize the filing burden on both the applicant and the Commission, and to provide for early introduction of IVDS to the public, we are adopting an abbreviated filing procedure for the lottery. For each IVDS system, we will require applicants to submit only FCC Form 155, specifying the applicant's name and address, the service area number[108], and the fee code along with the

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102 See new §§ 95.839 and 95.841, infra Appendix A.

103 See 47 CFR §§ 1.1307, 1.1308, 1.1311, and 1.1312.

104 See 47 CFR §§ 17.7 through 17.17.

105 It will be up to the IVDS licensee to determine if a CTS must be individually licensed.

106 See 47 CFR §1.1102(7), as amended, infra Appendix A.

107 See, e.g., TV Answer's Notice of Ex Parte Contact (December 27, 1991).

108 The service area number must be specified in the box labeled "Call Sign or Other FCC Identifier."

appropriate filing fee. Only one Form 155 will be required per system, regardless of the number of CTSs the applicant proposes to construct.[109]

71. As noted above, a fee must accompany the Form 155. Because the service is being regulated as a personal service under Part 95 of the rules, similar to GMRS, applicants must pay a fee of $35.00 per call sign (i.e., per CTS).[110] By requiring only a Form 155, however, we will not know the number of CTSs the applicant proposes to construct. This obviously complicates the issue of what fee should be submitted with the Form 155. Although, we could require applicants to specify the number of CTSs contemplated, this approach would lead to different filing fees for different markets.[111] Further, there would be nothing to prevent applicants from submitting a low estimate of the number of CTSs required, thereby reducing the cost of obtaining an IVDS system license. We thus believe the better approach is to initially blanket license all applicants for a predetermined number of CTSs. This approach will resolve the fee issue and is consistent with our goals of reducing licensing burdens, increasing flexibility and providing early introduction of IVDS service. In particular, we believe a minimum of 40 CTSs per market[112] would provide the

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109 An applicant may not have any interest in another pending application for the same service area.

110 See 47 CFR § 1.1102.

111 Non-standard fees lead to confusion on the part of the public and in the Commission's fee collection process.

112 The number of CTSs needed depends on a number of factors, such as the type of system and the particular service area. Because of the number of TV Channel 13 stations in and around major metropolitan areas and the requirement that IVDS protect TV Channel 13 operations, we believe most IVDS systems will be designed as low power, cellular-type systems such as TV Answer's system. TV Answer states that the "typical service range of a 'base station' will be on the order of 2 miles (3.2 km)." See Reply of TV Answer, Inc., Appendix A at 3 (July 13, 1990). If we apply this standard to the New York Service Area, it would take approximately 250 CTSs to cover 100 percent of the market. The rules, however, only require that 50 percent of the land area be covered within five years. Alternatively, the licensee could choose to cover 50 percent of the population rather than land area, thus reducing further the number of CTSs required. In addition, depending upon the location of the TV Channel 13 transmitting antenna in relation to the IVDS service area, the service range of some CTSs could be greater than the range specified above. Consequently, we believe that selecting 40 CTSs for initial application filing purposes is a reasonable compromise. This compromise provides a conservative estimate of IVDS system requirements and results in a simple and efficient application processing procedure for both applicants and the Commission.

flexibility needed for most IVDS systems.[113] Thus, the filing fee that must accompany the FCC Form 155 will be calculated by multiplying $35.00 by 40 CTSs. This results in a filing fee of $1400.00 for an IVDS system license.

72. We stress that selection as the winner of an IVDS service area does not provide authority to begin operation. Entities must still obtain an IVDS system license. Accordingly, once a tentative system licensee has been selected,[114] it will have two business days to file a Form 574 as an amendment to its application for an IVDS system license. If the application is in order, the Commission will grant a system license with a block of 40 call signs (see new Section 95.815, infra Appendix A).[115] Licensees will be free to modify this number in the future.[116] CTSs that require individual licensing will not have to be filed within this two-day period; rather, such applications must be submitted to the address set forth in Section 1.1102 of the rules and be accompanied by a fee of $35.00 per CTS.[117] As proposed in the Notice, a licensee may have no ownership interest in, financial interest in, or exercise de facto control over, both frequency segments in the same service area.

73. Licensing Criteria. In order to reduce the filing of speculative applications by entities that have no real intention of implementing such systems and to avoid the potential for warehousing of IVDS spectrum, we proposed certain basic licensing criteria. For example, we proposed requiring each application to include a plan showing that the proposed system would provide service to at least 50 percent of the proposed service area. We also proposed requiring successful applicants to construct at least 10 percent of the proposed local base stations within one year of licensing and at least 60 percent of those stations within five years. Licensees would be required to file a progress report on the status of the system at the conclusion of each benchmark period and licensees would forfeit their license if they did not meet the construction benchmarks. We also asked for comments on other criteria such as demonstrations of financial ability to construct the proposed system. We also proposed a five year license term.

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113 These CTSs must meet the 20 feet antenna rule and could be located anywhere within the service area provided their location is otherwise consistent with our rules.

114 Applicants selected will be announced by Public Notice.

115 The two-day time period will start the date the Public Notice is released. This two-day time frame in which to file applications will help ensure that applicants are fully prepared to go through with building an IVDS system and is consistent with our goal of minimizing speculative filings.

116 See new § 95.815 (e), infra Appendix A.

117 Entities must obtain an IVDS system license prior to filing for individually licensed CTSs.

74. Comments. TV Answer states that applicants should be required to provide the geographic coordinates of their proposed base stations, demonstrate financial ability to meet the required benchmarks and demonstrate that they intend to construct the proposed system.[118] TV Answer also states that licenses should be transferrable after 10 percent of the population or land area of the license area is served.[119] RTT states that to prevent speculation, applicants for IVDS should be required to prove that they have a viable technology, are capable both technologically and administratively of building and operating a system, and have the necessary capital available.[120] It also states that sales or transfers of control of licenses should be forbidden until after a system is operational and serving customers.[121]

75. The Action Exchange states that a 'public interest' standard should be a licensing criteria so that financial ability to construct does not become the sole basis on which system licenses are awarded.[122] HSN supports the adoption of reasonable criteria to be satisfied by potential applicants, including financial disclosures adequate to demonstrate the capability of an applicant to build the proposed system(s).[123] Vision Integrated Marketing, Inc. suggests that if an applicant has made a significant investment in IVDS technology, that fact should be considered in the granting of licensees.[124]

76. HSN states that our five-year license term proposal is reasonable, but suggests that a ten-year license term might be more appropriate for any frequency block set aside for nationwide licensing.[125] TV Answer states that a five-year license term is insufficient. It proposes a ten-year license term provided that the licensee files yearly progress reports on the system build-out.[126]

77. Decision. Based on the comments, we conclude that a major concern of potential users of this service is that an applicant who obtains a license through the lottery process may not actually build the IVDS system. We believe this concern is valid and have modified our proposed construction

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118 TV Answer comments at 29-31.

119 TV Answer comments at 31.

120 RTT comments at 8.

121 RTT comments at 9.

122 The Action Exchange comments at 1.

123 Home Shopping Network, Inc. comments at 1.

124 Vision Integrated Marketing, Inc. comments at 1.

125 Home Shopping Network, Inc.comments at 2.

126 TV Answer comments at 31.

requirements, as indicated below, to address it. We are also adopting our proposal that applicants submit a proposed system plan for this same reason. We are, however, modifying that proposal. Specifically, we will not adopt the proposed requirement that applicants provide detailed technical data with the plan, such as modulation type, error detecting and correcting codes, and data throughput. Instead, the plan must show how the applicant intends to minimize interference to adjacent channel users (i.e., TV Channel 13 and AMTS operations). Further, it must include a showing that the proposed system will cover at least 50 percent of the population or land area located within the service area.[127] The plan must be submitted when the tentative selectee files the Form 574 required to obtain its IVDS system license (see paragraph 72). We have not adopted a financial showing certification requirement as suggested by several commenters because of our decision not to license IVDS on a nationwide basis. In the past, for private radio services, we have only required financial certification for applicants for nationwide system licenses.[128] Further, we have adopted other criteria, such as construction requirements, that will reduce the number of speculative applications, and allow us to recover licenses quickly from entities unable to construct and operate their IVDS system. We believe these changes will provide greater flexibility to IVDS licensees, and at the same time help to assure that only bona fide applicants apply for IVDS licenses.

78. With respect to our construction requirements, we have revised proposed Section 95.831 to require a licensee to build its IVDS system within five years. Further, because we are blanket licensing every IVDS system for 40 CTSs, we have modified how we will track construction. Instead of counting individual CTSs, we will look at population or area covered. Additionally, we are requiring a report three years after licensing to permit timely recovery of a frequency segment if a licensee is not meeting its construction obligations. Licensee must construct a sufficient number of stations in one year to cover 10 percent of the population or land area, in three years to cover 30 percent of the population or land area, and in five years to cover 50 percent of the population or land area. Licensees not meeting these construction benchmarks[129] will automatically lose their IVDS system license and

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127 We have modified the rule to incorporate TV Answer's suggestion that either population or land area be used to determine if the licensee has met the 50 percent coverage requirement.

128 See Report and Order, PR Docket No. 89-552, supra note 98 at paras. 46-52.

129 To meet a construction benchmark, the required number of CTSs must be constructed. To be constructed, the CTS and two associated 2 RTUs must be in operation.

licenses for all CTSs in that particular market.[130] A licensee that loses its authorization due to failure to meet a construction deadline may not reapply for an IVDS system license for three years from the date the Commission takes final action affirming that the IVDS license has been canceled. We believe these criteria will reduce the number of speculative applications filed and will go a long way toward ensuring that potential licensees intend to construct an IVDS system.

79. Additionally, we have revised proposed Section 95.819 to prohibit transfer of an IVDS system license until the system construction benchmark (50 percent coverage) has been met. We are also adopting rules to prohibit partial assignment of any CTS or spectrum in any IVDS system. The right to construct or operate CTSs in an IVDS system can only be transferred or assigned in whole, not in part.[131] Finally, we are adopting a five-year license term, consistent with the license term used in most other private radio services. The five-year license term strikes a reasonable balance between the administrative burden on both the Commission and the applicant, and our desire to track the status of licensed IVDS operations. These rules will help to reduce any potential for trafficking in licenses by persons who have no real interest in constructing IVDS systems.

80. RF Hazard. In the Notice we invited comment on the subject of potentially excessive exposure to RF energy that might result from locating TV Answer-type RTUs in the home. Several commenters expressed concern that a 20 watt continuous wave transmission might exceed the American National Standards Institute (ANSI) guidelines for human exposure to electromagnetic radiation used by the FCC.[132] We note, however, TV Answer-type IVDS RTU equipment will be operated with pulsed wave transmissions and a relatively low duty cycle. Our calculations show that RF levels created by TV Answer-type IVDS RTU equipment adhering to our technical limits would be below ANSI guidelines in the vicinity of the equipment. RF levels of other possible types of equipment that meet our power and duty cycle limitations should also fall below ANSI guidelines. Since Part 95 services are already categorically excluded from the requirement to routinely evaluate RF radiation, IVDS licensees will also be excluded from that requirement.[133]

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130 The automatic cancellation of licenses for unbuilt facilities is also done in the private land mobile services. See 47 CFR §§ 90.155 and 90.631.

131 We will only license two entities for each IVDS service area, one for segment A and one for segment B.

132 See i.e. Thomson comments at 12.

133 See 47 CFR § 1.1307 (b), Note 1.

FINAL REGULATORY FLEXIBILITY ANALYSIS

81. Pursuant to 5 U.S.C. Section 603, an initial Regulatory Flexibility Analysis was incorporated in the Notice of Proposed Rule Making in GEN Docket No. 91-2. Written comments on the proposals in the Notice, including the Regulatory Flexibility Analysis, were requested.

82. Need for and Objective of Rules. Our objective is to establish a consumer-oriented interactive video and data service. The rules adopted herein will allow flexibility in implementing this new service, while reducing the potential for this service to interfere with existing services in nearby or adjacent bands.

83. Issues Raised by the Public in Response to the Initial Analysis. Most commenters supported allocating spectrum for IVDS, although a majority of those suggested modifications to specific proposals set forth in the Notice, although not specifically to the initial regulatory flexibility analysis. As a result, we have modified our proposals as appropriate. For example, in the Notice we had proposed to define IVDS service areas in terms of a radius from a reference set of coordinates, we now feel that it would ease the burden on both the Commission and IVDS applicants by defining IVDS service areas by MSA/RSAs.

84. Any Significant Alternative Minimizing Impact on Small Entities and Consistent with Stated Objectives. We have reduced burdens wherever possible. The regulatory burdens we have retained are necessary in order to ensure that the public receives the benefits of innovative new services in a prompt and efficient manner. We will continue to examine alternatives in the future with the objectives of eliminating unnecessary regulations and minimizing any significant economic impact on small entities. The Secretary shall send a copy of this Report and Order to the Chief Counsel for Advocacy of the Small Business Administration.

ORDERING CLAUSES

85. Accordingly, IT IS ORDERED, that Parts 1, 2, and 95 of the Commission's Rules and Regulations ARE AMENDED as specified below, [effective 30 days after publication in the Federal Register]. This action is taken pursuant to Sections 4(i), 7(a), 303(c), (g), and (r), and 309(a) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 157(a), 303(c), (g), and (r), and 309(a).

FEDERAL COMMUNICATIONS COMMISSION

Donna R. Searcy
Secretary

Appendix A

Parts 1, 2 and 95 of Chapter I of Title 47 of the Code of Federal Regulations are amended as follows:

A. Part 1 - PRACTICE and PROCEDURE

1. The authority citation for Part 1 continues to read:

AUTHORITY: Secs. 4, 303, 48 Stat. 1066, 1082 as amended; 47 U.S.C. 154, 303; Implement, 5 U.S.C. 552, unless otherwise noted.

2. § 1.926(a)(1) is revised to read as follows:

§ 1.926 Application for renewal of license.

(a) * * *

(1) Renewal of station or system authorizations in the Private Land Mobile Radio Services (Part 90 of this chapter), the General Mobile Radio Service (Part 95, Subpart A of this chapter), and the Interactive Video and Data Service (Part 95, Subpart F of this chapter) shall be submitted on FCC Form 574-R when the licensee has received that Form in the mail from the Commission. If the licensee has not received the Commission-generated Form 574-R within sixty (60) days of expiration, application for renewal of station or system license shall be submitted on FCC Form 405-A.

* * * * *

3. § 1.951 is amended by deleting paragraph (c), redesignating paragraph (d) as paragraph (c), and revising paragraph (a) to read as follows:

§ 1.951 How applications are distributed.

Licensing Division. All applications for radio stations are distributed as follows:

(a) Special Services Branch

(1) All Aviation Radio Services and Maritime Radio Services applications.
(2) Personal Radio Services applications: Amateur, General Mobile, and Interactive Video and Data.

(b) * * *

4. § 1.952(b) is amended by adding a category under the heading Personal Radio Services to read as follows:

§ 1.952 How file numbers are assigned

(a) ***

(b) ***

Personal Radio Services

ZA-General Mobile Radio Service
ZV-Interactive Video and Data Service

5. § 1.972(a)(1) is amended by adding "Part 95 Subpart F - Personal Radio Services" at the end of the list and amending paragraph (c) to read as follows:

(c) If there are mutually exclusive applications for an initial license for stations subject to Part 80 or Part 87, or if there are more applications for an initial license in Part 90, Part 94 or Part 95-Subpart F, than can be accommodated on available frequencies, the Commission may process the applications pursuant to a system of random selection. Each such random selection shall be conducted pursuant to an order issued by the Private Radio Bureau and under the direction of the Chief of the Bureau.

6. § 1.1102 is amended to read as follows:

§ 1.1102 Schedule of charges for private radio services.

Action	FCC Form	Fee	Fee type	Address
*	*	*	*	*

7. General Mobile Radio Service:

a. New, Modification and/or Renewal (per call sign).				
(i) General Mobile Radio Service	FCC 574	35	PAL	Federal Communications Commission, General Mobile Radio Service, P.O. Box 358230 Pittsburgh, PA 15251-5230

(ii) Interactive Video and Data Service	FCC 574 FCC 155	35	PAI	Federal Communications Commission, Interactive Video and Data Service, P.O. Box 358365, Pittsburgh, PA 15251-5365
b. Renewal of license (per call sign).				
(i) General Mobile Radio Service	FCC 574R	35	PAL	Federal Communications Commission, 574R Land Mobile Renewal, P.O. Box 358245, Pittsburgh, PA 15251-5245
	FCC 405A, FCC 155	35	PAL	Federal Communications Commission, 405A Station Renewal, P.O. Box 358270, Pittsburgh, PA 15251-5270
(ii) Interactive Video and Data Service	FCC 574R FCC 155	35	PAI	Federal Communications Commission, 574R Land Mobile Renewal, P.O. Box 358245 Pittsburgh, PA 15251-5245
	FCC 405A, FCC 155	35	PAL	Federal Communications Commission, 405A Station Renewal, P.O. Box 358270, Pittsburgh, PA 15251-5270
c. * * *				

* * * * * * *

B. PART 2 - FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS: GENERAL RULES AND REGULATIONS

1. The authority citation in Part 2 continues to read:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. 154, 302, 303, and 307 unless otherwise noted.

2. § 2.106, the Table of Frequency Allocations, is amended by listing footnote US317 in columns 4 and 5 and adding the use designator "Personal Radio Services (95)." in column 6 for the 216.0-220.0 MHz band and adding the text of footnote US317 to the list of footnotes at the end of the table as follows:

§ 2.106 Table of Frequency Allocations

* * * * *

International Table			United States Table		FCC use designators	
			Government	Non-Government		
Region 1 Allocation MHz	Region 2 Allocation MHz	Region 3 Allocation MHz	Allocation MHz	Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
216-220 FIXED. MARITIME MOBILE. Radiolocation 627 627A			216-220 MARITIME MOBILE Aeronautical-Mobile. Fixed. Land Mobile. Radiolocation 627 US210 US229 US274 US317 G2	216-220 MARITIME MOBILE Aeronautical-Mobile. Fixed. Land Mobile. 627 US210 US229 US274 US317 NG121	MARITIME (80). Private Land Mobile (90). Personal Radio Service (95).	

* * * * *

United States (US) Footnotes

* * * * *

US317 The band 218.0-219.0 MHz is allocated on a primary basis to the Interactive Video and Data operations.

C. Part 95 - PERSONAL RADIO SERVICES

1. The authority citation for Part 95 continues to read as follows:

AUTHORITY: Secs. 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303.

2. § 95.1 is revised by adding paragraph (c) to read as follows:

§ 95.1 The General Mobile Radio Service (GMRS).

(a) ***

(b) ***

(c) The Interactive Video and Data Service (IVDS) is a two-way point-to-multipoint radio service intended for system licensees to provide information, products, and services, and to obtain responses from, subscribers in a specific service area. The rules for this service are contained in Subpart F of this Part.

3. Part 95 is amended by adding a Subpart F, and its table of contents, to read as follows:

Subpart F - Interactive Video and Data Service (IVDS)

GENERAL PROVISIONS

SYSTEM LICENSE REQUIREMENTS

SYSTEM REQUIREMENTS

TECHNICAL STANDARDS

Subpart F-Interactive Video and Data Service (IVDS)

GENERAL PROVISIONS

§ 95.801 Scope.

This Subpart sets out the regulations governing the licensing and operation of an Interactive Video and Data Service (IVDS) system. The rules in this Subpart are to be read in conjunction with applicable requirements contained elsewhere in the Commission's Rules.

§ 95.803 IVDS description.

(a) An IVDS system is a point-to-multipoint, multipoint-to-point, short distance communications service for its licensee to provide information, products, or services to, and allow interactive responses from, subscribers located at fixed locations in the service area.

(b) The components of each IVDS system are its associated administrative apparatus, its response transmitter units (RTUs), and one or more cell transmitter stations (CTSs). Each IVDS system is authorized for a specific service area and frequency segment. There can be a maximum of two IVDS systems per service area. There are two frequency segments available for each service area.

(c) Each IVDS system service area is one of the cellular system service areas as defined by the Commission.

§ 95.805 Permissible Communications.

(a) Each IVDS system may conduct CTS-to-RTU and RTU-to-CTS communications between the system licensee and its subscriber's locations.

(b) Ancillary CTS-to-CTS communications within the same IVDS system is permitted on a secondary basis.

(c) Direct RTU-to-RTU communications are prohibited.

(d) The licensee may use the IVDS system to interact with its subscribers concerning products and services offered, polls conducted, educational classes taught, and activities in conjunction with broadcast and cable operations.

(e) An IVDS system may provide service to fixed locations within the service area such as private residences, places of business, educational institutions, and local, state, or federal government agencies.

(f) No IVDS system may render a common carrier service.

LICENSE REQUIREMENTS

§ 95.811 License requirements.

(a) Each IVDS system must be licensed.

(b) Each component CTS where the antenna does not exceed 6.1 meters (m) (20 feet) above ground or an existing man-made structure (other than an antenna structure) are authorized under the IVDS system license. All other component CTSs must be individually licensed to the system licensee.

(c) Each component RTU in an IVDS system is authorized under the IVDS system license or if associated with an individually licensed CTS, under that CTS license.

(d) The term of each IVDS system license and each CTS license is five years.

§ 95.813 Eligibility.

(a) An entity is eligible to hold an IVDS system license and its associated individual CTS licenses if:

(1) The entity is an individual who is not a representative of a foreign government; or

(2) The entity is a partnership and no partner is a representative of a foreign government; or

(3) The entity is a corporation organized under the laws of the United States of America.

(b) No entity is eligible to hold an IVDS system license if:

(1) The entity already holds an IVDS system license or has an interest in an IVDS system license for the same service area.

(2) The entity had an IVDS system license canceled within the past three years for failure to meet the construction requirements specified in § 95.831 of this Part.

(c) Each individually licensed CTS must also be held by the IVDS system license for the service area in which the CTS is located.

§ 95.815 License application.

(a) An application for an IVDS system license may be filed by an eligible applicant for a service area only when there are less than two existing IVDS system licenses.

(b) Each application for an IVDS system license and each application for a CTS license where the CTS antenna exceeds 6.1 m (20 feet) (See § 95.811(b)) must be made on a separate FCC Form 574. Each application for an IVDS system license must be submitted to the Federal Communications Commission, Interactive Video and Data Service, P.O. Box 358365, Pittsburgh, PA 15251-5230. Each application for the CTS must be submitted to the address set forth in § 1.1102 of the Commission's Rules.

(c) Each application shall be personally signed by the applicant, if the applicant is an individual; by one of the partners, if the applicant is a partnership; or by an officer or duly authorized employee, if the applicant is a corporation.

(d) Each application for an IVDS system license must include the following:

(1) A cover sheet specifying the applicant's name and address and the specific service area number and name as defined in § 95.803 of this Part.

(2) A completed application (FCC Form 574).

(3) A plan showing how the applicant intends to minimize co-channel interference and interference to adjacent channel users and a showing that the proposed system will provide coverage (39 dbu) to at least 50 percent of the population (1990 census) or land area within the service area.

(e) Each IVDS system license is initially licensed for 40 CTSs. Licensees wishing to modify this number must submit a cover sheet as outlined in (d)(1) and a Form 574 specifying the new number of CTSs.

(f) Each request by an IVDS system licensee to add, delete, or modify an individually licensed CTS (the CTS antenna exceeds 6.1m (20 feet) (See § 95.811(b))) must include the following:

(1) A cover sheet specifying the licensee's name and address and the specific service area number and name where the IVDS system is located.

(2) A description of the system after the proposed addition, deletion, or modification, including the population in the service area, the number of component CTSs, and an explanation of how the system will satisfy the service requirements specified in § 95.831 of this Subpart.

(3) A separate application (FCC Form 574) for each CTS that is being added or modified.

(4) The license for each CTS that is being deleted.

(g) Any application not complying with the Commission's Rules will be dismissed.

(h) Each application will be processed on a first-come-first-served basis.

§ 95.817 Application for renewal of license.

(a) Each application for renewal of an IVDS system license and for renewal of each individually licensed CTS shall be submitted on a Commission-generated FCC Form 574-R when the licensee has received that form in the mail from the Commission. If the licensee has not received the Form 574-R within sixty days of expiration, application for renewal shall be submitted on FCC Form 405-A.

(b) Each application for renewal must be submitted as part of a renewal package to the address set forth in § 1.1102 of the Commission's Rules.

(c) The renewal package must include a cover sheet specifying the licensee's name and address and the service area number and name.

§ 95.819 License not transferable.

(a) The licensee may not transfer, assign, sell, or give the IVDS system license or any component CTS license to any other entity until the five year construction benchmark (50 percent coverage) has been met.

(b) Once the five year construction benchmark has been met, the licensee may transfer, sell, assign, or give the IVDS system license together with all of its component CTS licenses to any other entity only in accordance with the provisions of § 95.821 of this Part. If the licensee sells or gives away the apparatus, the new owner must obtain a new IVDS system license and CTS licenses before placing it in operation.

§ 95.821 Application for transfer of control.

If an IVDS system licensee agrees to a change in control of the station, the holder must request Commission consent for change of control by filing a Form 703. The licensee shall mail the request, together with the filing fee, to the address specified in § 1.1102 of the Commission's Rules. The document granting such consent must be kept as part of the IVDS system authorization.

SYSTEM REQUIREMENTS

§ 95.831 Service requirements.

Each IVDS system licensee must make the service available to at least 50 percent of the population or land area located within the service area.

§ 95.833 Construction requirements.

(a) Each IVDS system licensee must make the service available to at least 10 percent of the population or area within the service area within one year of grant of the IVDS system license, 30 percent of the population or land area within three years of grant of the IVDS system license, and 50 percent of the population or land area within five years of grant of the IVDS system license. Failure to do so will cancel the IVDS system license automatically. For the purposes of this Section, a CTS is not considered as providing service unless that CTS and two associated RTUs are placed in operation.

(b) Each IVDS system licensee must file a progress report at the conclusion of each benchmark period to inform the Commission of the construction status of the system. The report must be addressed to: Federal Communications Commission, Special Services Branch, 1270 Fairview Road, Gettysburg, PA 17325-7245. The report must include:

(1) A showing of how the system meets the benchmark; and

(2) A list, including addresses, of all component CTSs constructed.

§ 95.835 Station identification.

No RTU or CTS is required to transmit a station identification announcement.

§ 95.837 Station inspection.

Upon request by an authorized Commission representative, the IVDS system licensee must make any component CTS available for inspection.

§ 95.839 Operation in the National Radio Quiet Zone

Before constructing a CTS in any area within the National Radio Quiet Zone (see § 95.41 of this Part) or before changing frequency segment,

transmitter power, antenna height or directivity, or the coverage area of an existing CTS or RTU located within any area within the National Radio Quiet Zone, the licensee must give written notification thereof to the Interference Office, National Radio Astronomy Observatory, P.O. Box 2, Green Bank, WV 24944.

(1) The notification must include the geographical coordinates of all component CTS antennas, antenna ground elevation above mean sea level, antenna center of radiation above ground level, antenna directivity, proposed frequency, type of emission, and transmitter power.

(2) If an objection to the proposed CTS is received by the Commission from the National Radio Astronomy Observatory at Green Bank, Pocahontas County, WV, for itself or on behalf of the Naval Research Laboratory at Sugar Grove, Pendleton County, WV, within 20 days from the date of notification, the Commission will consider all aspects of the problem and take whatever action is deemed appropriate.

§ 95.841 Operation near a Commission monitoring facility.

Each CTS and each RTU transmitting from a location within 1.6 km (1 mile) of a Commission monitoring facility must protect that facility from harmful interference. Failure to do so could result in imposition of restrictions upon the operation of the CTS or RTU by the Engineer-in-Charge of the facility. (Geographical coordinates of the facilities that require protection are listed in § 0.121(c) of the Commission's Rules.)

TECHNICAL STANDARDS

§ 95.851 Type Acceptance

Each CTS and RTU transmitter must be type-accepted for use in the IVDS in accordance with Subpart J of Part 2 of the Commission's Rules.

§ 95.853 Frequency segments.

(a) Frequency segment A is 218.0-218.500 MHz. Frequency segment B is 218.501-219.0 MHz.

(b) Each CTS and each RTU in the same IVDS system shall transmit in the same assigned frequency segment.

§ 95.855 Transmitter effective radiated power limitation.

(a) The effective radiated power of each CTS and RTU shall be limited to the minimum necessary for successful intercommunication. RTUs must incorporate automatic power control to ensure the minimum power is used. No CTS or RTU may transmit with an effective radiated power (ERP) exceeding 20 watts.

(b) For an IVDS system located in a TV Channel 13 station Grade B predicted contour, the maximum ERP shall be limited as follows:

TV Channel 13 Service Area	Maximum CTS ERP
City Grade	20 watts
Grade A	7 watts
Grade B	1 watt
Grade B +2 miles	1 watt
Grade B +3 miles	3 watts
Grade B +4 miles	10 watts
Grade B +5 miles and beyond	20 watts

§ 95.857 Emission standards.

(a) All transmissions by each CTS and by each RTU shall use an emission type that complies with the following standard for unnecessary radiation.

(b) All spurious and out-of-band emissions shall be attenuated:

(1) Zero dB on any frequency within the authorized frequency segment.

(2) At least 28 dB on any frequency removed from the midpoint of the assigned frequency segment by more than 250 kHz up to and including 750 kHz;

(3) At least 35 dB on any frequency removed from the midpoint of the assigned frequency segment by more than 750 kHz up to and including 1250 kHz;

(4) At least 43 plus 10 log (base 10) (mean power in watts) dB on any frequency removed from the midpoint of the assigned frequency segment by more than 1250 kHz.

(c) When testing for type acceptance, all measurements of unnecessary radiation are performed using a carrier frequency as close to the edge of the authorized frequency segment as the transmitter is designed to be capable of operating.

(d) The resolution bandwidth of the instrumentation used to measure the emission power shall be 100 Hz for measuring emissions up to and including 250 kHz from the edge of the authorized frequency segment, and 10 kHz for measuring emissions more than 250 kHz from the edge of the authorized frequency segment. If a video filter is used, its bandwidth shall not be less than the resolution bandwidth. The power level of the highest emission within the frequency segment, to which the attenuation is referenced, shall be remeasured for each change in resolution bandwidth.

§ 95.859 Antennas.

(a) No CTS antenna shall be elevated higher than necessary to assure adequate service. No CTS antenna structure, including the radiating elements, tower, supports and all appurtenances, may exceed a maximum Height Above Average Terrain (HAAT), as defined in § 90.309 of the Commission's Rules, of 36.6m (120 feet) within an area defined by a boundary line 16 km (10 miles) outside of the Grade B contour of a TV Channel 13 station. When an antenna is located beyond 16 kM (10 miles) from a TV Channel 13 Grade B contour, the HAAT shall not exceed 152.5m (500 feet).

(b) No CTS antenna shall be located within 61m (200 feet) of a residential dwelling.

(c) Except as noted in (d), the RTU antenna must be an integral part of the RTU unit.

(d) In buildings with multiple subscribers (10 or more) RTUs can be connected to a master external antenna. The external antenna cannot be more than 6.1m (20 feet) above ground or above an existing man made structure (other than an antenna structure) and is subject to § 95.861.

§ 95.861 Interference

(a) When an IVDS system suffers harmful interference within its service area from or causes harmful interference to another IVDS system, the licensees of both systems must cooperate and resolve the problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions including, but not limited to, specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned.

(b) The use of any frequency segment at a given geographical location may be denied when, in the judgment of the Commission, its use in that location is not in the public interest; the use of a frequency segment specified for the IVDS system may be restricted as to specified geographical areas, maximum power, or other operating conditions.

(c) Each IVDS system licensee must inform all households located both within a TV Channel 13 station Grade B predicted contour and the CTS service area of the potential for interference from an IVDS system. The IVDS system licensee must also inform those potentially affected households that it will eliminate any objectionable interference caused to television reception by its IVDS system. This notification shall be made no more than two weeks before and no more than two weeks after initiation of IVDS service in that area.

(d) Each IVDS system licensee must provide upon request, and install free of charge, an interference reduction device to any household within a TV Channel 13 station Grade B predicted contour that experiences interference due to a component CTS or RTU.

(e) Each IVDS system licensee must investigate and eliminate interference to television broadcasting and reception, from its component CTSs and RTUs, within 30 days of the time it is notified in writing, by either an affected television station, an affected viewer, or the Commission, of an interference complaint. Should the licensee fail to eliminate the interference within the 30 day period, the CTS or RTU causing the interference must discontinue operation.

(f) The boundaries for each IVDS service area, as defined in § 95.803 of this Part, are the limits of interference protection for an IVDS system.

§ 95.863 Duty cycle

(a) The maximum duty cycle of each RTU shall not exceed 5 seconds per hour, or, alternatively, not exceed one percent within any 100 millisecond interval.

Appendix B

Parties Filing Comments in Response to GEN Docket No. 91-2:

1. Action Exchange
2. Alter Barge Line, Inc.
3. American Radio Relay League, Inc.
4. American Waterways Operators
5. Aquarium Corporation
6. Association for America's Public Television Stations
7. Association of Maximum Service Television
8. Bunge Corporation
9. California Public Utilities Commission
10. CEO Interactive Network
11. Children's Television Workshop
12. Commonwealth Edison Company
13. Conticarriers and Terminals, Inc.
14. Corporation for Public Broadcasting
15. Dupont
16. Educational Broadcasting Corporation
17. Egle Associates
18. Five M Transportation Corporation
19. Fox Television Stations
20. Goldberg Co., Inc.
21. Home Shopping Network, Inc.
22. Independent Television
23. Interactive Systems, Inc.
24. Jewell Television Corporation
25. KB Media, Inc.
26. KCOP Television, Inc.
27. Kelley Television Company
28. L&L Oil Company, Inc.
29. Lanford Telecasting Company, Inc.
30. M/G Transport Services, Inc., Goltz
31. M/G Transport Services, Inc., Gurley
32. M/G Transport Services, Inc., Hayden
33. M/G Transport Services, Inc., Ludmann
34. M/G Transport Services, Inc., McCafferty
35. M/G Transport Services, Inc., Mills
36. M/G Transport Services, Inc., Olumart
37. M/G Transport Services, Inc., Phelps
38. M/G Transport Services, Inc., Reed
39. M/G Transport Services, Inc., Sane
40. M/G Transport Services, Inc., Self
41. M/G Transport Services, Inc., Sholor
42. M/G Transport Services, Inc., Talbert
43. M/G Transport Services, Inc., Uhrig
44. M/G Transport Services, Inc., Whitaker
45. M/G Transport Services, Inc., Zurenko
46. Marine Inland Transportation Company
47. Mel Wheeler, Inc.

48. Metriplex, Inc.
49. Metscan, Inc.
50. National Association of Broadcasters
51. National Public Radio
52. NTV Network
53. Portel Network Services, Inc.
54. Radio Technical Commission for Maritime Services
55. Radio Telecom & Technology, Inc.
56. Stolt-Nielsen, Inc.
57. Tenn-Tom Trading Company, Inc.
58. Thomson Consumer Electronics, Inc.
59. Tribune Broadcasting Company
60. TV Answer, Inc.
61. U.S. Coast Guard
62. Valley Line Company
63. Vision Integrated Marketing, Inc.
64. Waterway Communications System, Inc.
65. Wingerter, E. Scottd
66. Wireless Cable Association
67. (38) Numerous single letter comments placed in the binder to this proceeding.

Parties Filing Reply Comments in Response to NPRM.

1. American Petroleum Institute
2. Anchor Media Television, Inc. and WLOS-TV, Inc.
3. Association for Maximum Service Television, Inc.
4. Association of America's Public Television Stations, et al.
5. Children's Television Workshop
6. Consumer Electronics Group-Electronic Industries Association
7. Corporation for Public Broadcasting
8. Gateway Communications, Inc.
9. George Mason University Foundation, Inc.
10. Guy Gannett Publishing Co.
11. Integrated Communications System, Inc.
12. Interactive Systems, Inc.
13. KCOP Television, Inc.
14. Metriplex, Inc.
15. National Association of Broadcasters
16. Northwest Television, Inc.
17. Philips Consumer Electronics Corporation
18. Pikes Peak Broadcasting Company
19. Radio Telecom and Technology, Inc.
20. Southwestern Bell
21. TV Answer, Inc.
22. United States Telephone Association
23. Waterway Communications System
24. WDIO-TV, Inc.
25. WJG Maritel Corporation
26. WVEC Television, Inc.

Concurring Statement of
Commissioner James H. Quello

RE: Interactive Video and Data Services, GEN Docket No. 91-2.

Interactive video and data services have many potential applications serving consumers, and I am particularly interested in its application for educational purposes. Today's action allocates 1 MHz of spectrum to a wireless form of interactive video. The record does not demonstrate that 1 MHz is needed at this time; therefore, I would have preferred allocating 500 kHz until demand for interactive services has been determined. We are approaching this allocation, or more appropriately stated reallocation, with a Field of Dreams concept that if you build it they will come. Spectrum is far too valuable and in demand to reallocate on such a basis.

The other side of the equation in this reallocation Order is the taking away from the maritime services spectrum allocated for communication along America's waterways. I understand that some of this spectrum is essentially unusable by the maritime industry since it is adjacent to television channel 13 and would likely cause interference to broadcast service. Therefore, other non-interfering services, such as interactive video and data services, should have access to this valuable resource. The primary concern for me then is how much spectrum should be reallocated; and 500 kHz according to the proponents of interactive video and data systems seems to be a reasonable starting point. In the event that the demand for these services exceeds a 500 kHz allocation, then consideration of additional spectrum could be made. Alternatively, if the demand for these services fails to materialize, then the Commission will reclaim unused spectrum. With my primary concern being addressed, I concur with this item.